Interconnect technology for flexible hybrid electronics

System Integration for Plastic Electronics Manufacturing (**SiPEM**)

Objectives

- Develop new interconnect technologies for flexible hybrid electronics and benchmark them against the ACA approach
- Develop a novel multilayer integration technology to bring together multiple electronic functions (fabricated on separate substrates) into a single flexible hybrid system

Research

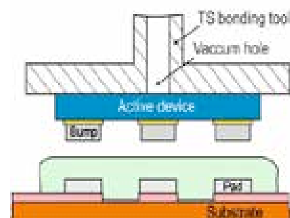
- Investigated range of bonding techniques for Si on flex and flex-to-flex bonding
- Developing a new multilayer system joining approach

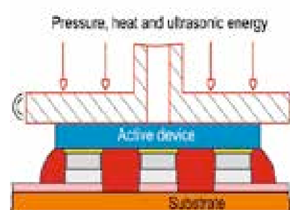
Achieved

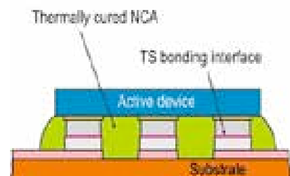
- NCA packaging for both silicon ICs and flexible ICs on Ag- or Cu-printed plastic substrates
- Thermosonic bonding of flexible ICs to Ag-printed PET substrates.
- Thermosonic + adhesive packaging for flexible ICs on Ag-printed plastic substrates
- Joint resistance of <10 mΩ
- Rapid joint fabrication

Applications

- Wearable devices
- Healthcare devices
- Smart labels

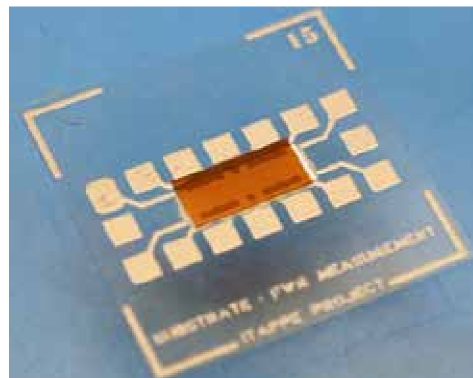






Benefits

- Low cost – NCA materials cheaper than conductive adhesives
- High reliability – TS/NCA combination potentially better than pure adhesive approach
- High throughput – fast TS bonding (<1 s packaging)
- Flex-on-Flex packaging



Opportunities

- Collaborate with us to develop or customise this technology for your application
- Work with us to scale up the technology

www.largeareaelectronics.org
info@largeareaelectronics.org

EPSRC CENTRE FOR INNOVATIVE MANUFACTURING IN
Large-Area Electronics